

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

Flying Men and Flying Matériel.

While from statements repeatedly made by those who are in a position to know there can be not the slightest doubt that individually our aviators and those of our Allies are more than a match for the enemy's pilots and observers, the relative effectiveness of Allies' and enemies' *matériel* is not so definitely stated. From its very nature it follows that the greatest delicacy is necessary in discussing this question, since it is a matter of the very highest importance, and one on which it is exceedingly difficult to say enough without saying too much. However, as the types of machines that have been employed up to the present are most certainly well known to the enemy, one can without fear of furnishing any fresh information likely to be of service to our enemies discuss just the fringe of some of the lessons learned up to now, and attempt to deduce therefrom the line of development that may most profitably help to gain definitely and retain a similar ascendancy in *matériel* to that already so well established by the *personnel* of our air services.

Beginning with the monoplane, Germany has, according to all accounts, practically discarded this type for military purposes. This is no doubt in a measure due to the fact that, apart from a few more or less freakish attempts at what one might term an ordinary monoplane, the Taube

was the only form of which they had any experience, and this soon proved too slow and too indifferent a climber to be of any great use. In addition, there was the inherent unsuitability of the monoplane *per se* for observation and bomb-dropping purposes. The Allies, on the other hand, although discarding certain forms of monoplanes after learning their weak points during a comparatively short period of war, have not altogether abolished the type yet, but have retained it in at least one form—the parasol—which, although admittedly suffering from certain defects, has the redeeming advantage that from it a most excellent view can be obtained in a downward direction, facilitating observation and bomb-dropping. Everything considered, we are inclined to think, however, that no great improvements are likely to be effected in the monoplane type, whether ordinary or parasol, and that future development will follow along other lines. In the matter of fast single-seater scouting biplanes, we were undoubtedly the first to demonstrate the possibilities of obtaining high speed and good speed variation, coupled with excellent climbing, with this type of machine. In Germany the military authorities had not laid any great stress on these qualities, with the result that designers devoted their attention more particularly to the attainment of reliability. This they managed to secure in no small degree, chiefly through the employment of such excellent engines as the Mercedes, Austro-Daimler and others. Inspired by the success of British scouting biplanes, a few German designers presently turned their attention to this type, of which a certain number were produced shortly before the outbreak of war. Judging from such information as is available, the enemy is not even at the present time making any extended use of single-seater scouting biplanes. The reason for this may, perhaps, be found in the difficulty of landing, which requires highly skilful piloting. In the hands of our aviators these swift scouts have, however, repeatedly proved their great military utility, and the type has, as we see it, come to stay, subject, of course, to progressive improvements.

The next type to be considered is the tractor two-seater reconnaissance biplane. In the design and construction of this the enemy has had probably as great experience as ourselves, and although in the days before the war German tractors were not so fast as some of the best of ours, being somewhat heavy and cumbersome, their modern machines are quite as fast as, if not indeed faster than, the majority of the Allies', and similar craft moreover climb very well indeed. This efficiency again

is probably due to the new Mercedes engines, which are said to be marvels in the way of giving high power for light weight without losing appreciably in reliability. There can be little doubt that had our Government gone to work in the right spirit away back in the "Glacial" period of aviation development, we might long before now have had an adequate supply of at least as good and probably better engines as the Mercedes. As it is, we have to make the best of things as they are, and if we have not succeeded already in making up lost time in this respect, we have at least engines available which give the necessary power, even if they may be slightly heavier. This may not be the most efficient way of obtaining the speed and climb necessary to give our pilots a chance to fight their adversaries on something like an equal footing, but it is a short cut always available and therefore of practical utility at a time like the present.

Another type of two-seater biplane regarding which our own and the enemy's military authorities appear to differ in opinion is the engine behind or "pusher" type in its usual form. By usual we mean one having the pilot and observer placed in front, while behind them, in the rear of the *nacelle*, is placed a single engine driving a single propeller. According to information to hand, the enemy places no great faith in this type, although, judging from notices and pictures in the German aeronautical press, a few captured Maurice Farman and Voisins have been, and are being, used by him for school purposes. With our own as well as our Allies' air services "pushers" are employed extensively, as they offer exceptional facilities for observation and bomb-dropping, although, generally speaking, not being so fast as the majority of tractors with the same horse-power. There are numerous difficulties which beset the designer who attempts to produce a really fast "pusher," but it appears to us that these are not unsurmountable, and, once the problem is satisfactorily solved, it will easily have been worth all the trouble and money expended. There is one avenue of development along which comparatively little has been done, *i.e.*, the short span, fast single-seater scout of the pusher type. This, we venture to think, would have great possibilities, and should be worth developing.

In regard to the large fighting machines of the present time, much has been heard lately of the new German "battle" aeroplanes, concerning which it is naturally difficult at the present stage to obtain information of a really helpful character. It would, however, seem that various types have been evolved, some of which, as far as can be gathered, are fitted with three engines, one in the nose of each of the two *fuselages* and another in the rear of the central *nacelle*. Other reports would appear to indicate a different type of German fighting machine with a single *fuselage*, and two engines placed in stream-

line casings some distance out along the wings. Judging from the speed and climb of which some apparently standard-looking machines are said to be capable, higher-powered engines than the usual 100 or 150 h.p. Mercedes are evidently employed. Coming to the Allies' equipment of fighting machines, silence must be our watchword, but there is no manner of doubt but that we shall be able to match and surpass those of the enemy, both in the single and in the multiple engine types.

It is always unsafe to venture any prophecy, more so, perhaps, in aviation than in anything else, but it appears to us that the expansion tendency of the future will be towards the really large machine capable of carrying one or more fair-sized guns and large supplies of bombs. There is one fundamental factor which puts a limit to the size to which present types of biplanes can be built, namely, the fact that for the same form of construction, when linear dimensions are increased, the area grows as the square, and the weight as the cube. It would therefore seem that for the mammoth machines of the future a different form of construction will have to be employed, if the weight and loading are to be kept normal. Here it appears to us that the most obvious line of development will lie along the multiplane form, either by superimposing the surfaces or by arranging them in tandem. Of these two alternatives the superimposed surfaces seem to us to offer the greatest possibilities, especially if taken in conjunction with multiple engines placed along the wings, so as to distribute the load more evenly over the entire surface.

The Inventor's Opportunity.

Complaints have ever been rife in the past of the difficulties experienced in getting the naval and military authorities to consider any new ideas. No useful purpose can be served by discussing whether such complaints have been well or ill founded; it is to the future we have to look, and in this regard the Minister of Munitions has given further evidence of his many activities, by constituting, as recorded in last week's *Flight*, a Munitions Inventions Branch, of which Mr. E. W. Moir, M.Inst.C.E., has been appointed Comptroller.

For the present the Branch will be located in Armament Buildings, Whitehall, and to it will fall the duty of investigating inventions relating to munitions for warfare on land, &c. The comptroller and staff will be assisted by a panel of honorary experts, and the presence on the panel of such names as Mr. Horace Darwin, Professor Glazebrook, Mr. F. W. Lanchester, and Professor Vivian Lewes should give full confidence that any inventions or ideas in connection with aeronautics which may be submitted to the Branch will receive the soundest possible consideration.

The Roll of Honour.

THE Secretary of the Admiralty has officially announced the following casualties:—

Under date August 10th:

Missing.

Flight-Lieutenant David K. Johnston, R.N.

Under date August 12th:

Missing.

Flight-Lieutenant John M. D'Arcy Levy, R.N.

Undated:

Previously reported Missing, now reported Prisoners of War.

Flight Sub-Lieutenant William A. K. Dalzell, R.N.

Sub-Lieutenant C. H. Dolling-Smith, R.N.V.R.

The following casualties have been reported from the

General Headquarters of the Expeditionary Force to the War Office:—

Under date July 28th:

Officially reported Missing and Unofficially reported Prisoner of War.
Corporal V. Judge.

Under date August 10th:

Wounded.

Lieutenant M. J. Ambler, 14th Hussars, attached R.F.C.

Missing.

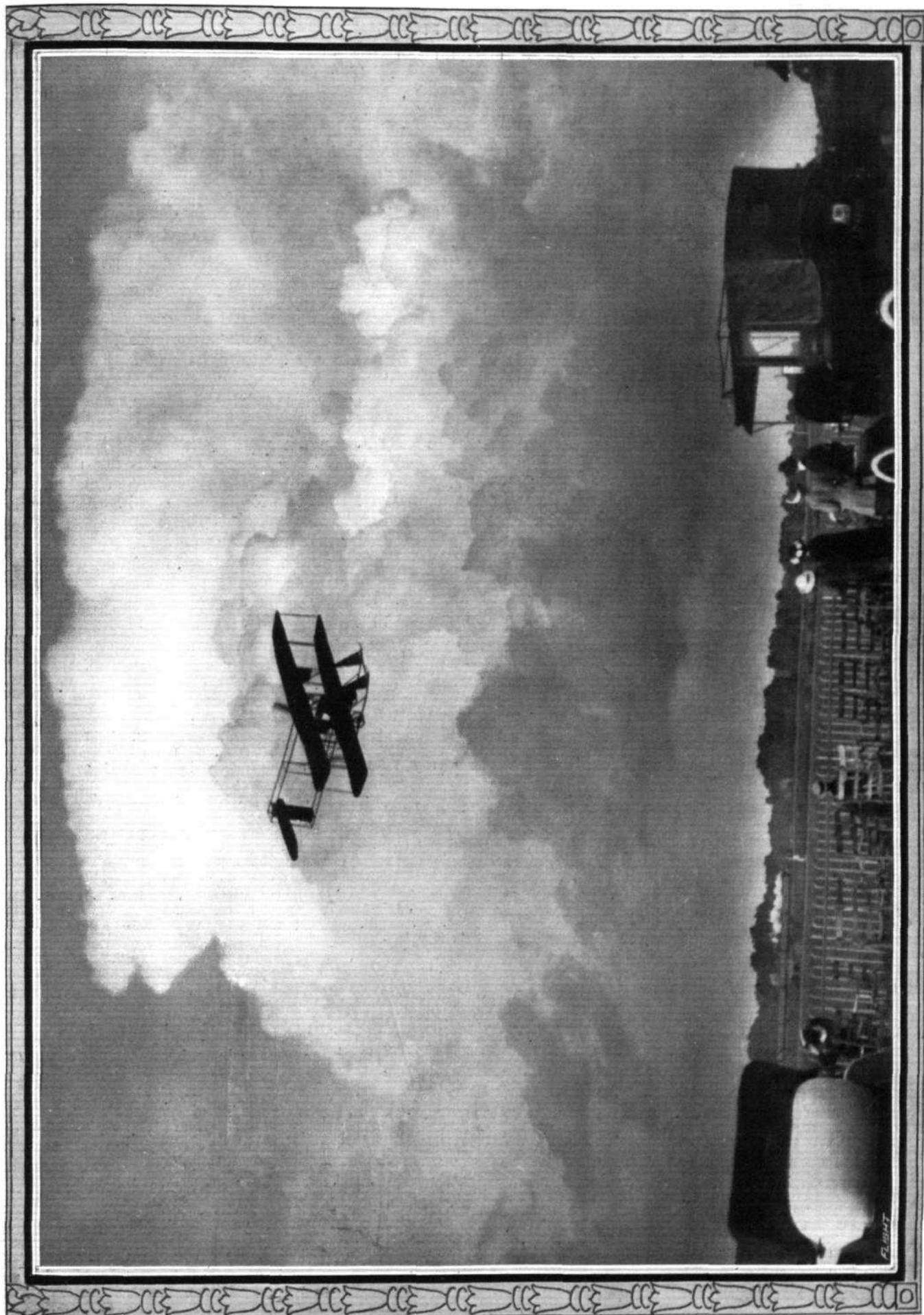
Captain R. M. Pike, Royal Flying Corps.

The following casualty in the Indian Forces has been officially reported from General Headquarters:—

Undated:

Missing.

Lieutenant H. M. Hankin, Queen Victoria's Own Corps of Guides, attached R.F.C.



"Flight" Copyright

Stormy air-work by Mr. Roche-Kelly on a Beatty-Wright at Hendon.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

THE following appeared in the *communiqué* issued in Paris on Sunday afternoon :—

"A group of nineteen aeroplanes bombarded a German post and dépôt in the valley of the Spada. One hundred and eight shells were dropped on the objectives aimed at. All our machines returned without incident."

The Chief of the Italian Naval Staff issued the following *communiqué* on Wednesday :—

"Yesterday morning twenty Austrian naval units

and an aeroplane attacked the small island of Pelagosa. The violent attack was met with great bravery, and the enemy retired without attempting to land."

In an official telegram from Cetinje received on Monday by Sir Roper Parkington, Consul-General for Montenegro, there was the following :—

"The Austrian aeroplanes make daily flights over our entrenchments for reconnaissance purposes."

THE "X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of aircraft raids to be published we are as before (see issue of June 11th, 1914) giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

The following announcement has been issued by the Admiralty, the date in the brackets indicating when the statement was issued :—

"X5" Raid, August 12th (August 13th).

Two Zeppelins visited the East Coast last night between 9.30 p.m. and 11.45 p.m., dropping incendiary and explosive bombs at various places, resulting in the following casualties : Killed, 4 men, 2 women. Injured, 3 men, 11 women, 9 children. (All civilians.) Fourteen houses were seriously damaged.

The Zeppelins were engaged at some points, but succeeded in getting away from our aircraft patrols. One of the Zeppelins was probably damaged by the mobile anti-aircraft section.

The following has been issued by the Press Bureau :—

"X6" Raid, August 17th (August 18th).

Zeppelins visited the Eastern Counties last night and dropped bombs. Anti-aircraft guns were in action, and it is believed that one Zeppelin was hit. Air patrols were active, but owing to the difficult atmospheric conditions the Zeppelins were able to escape.

Some houses and other buildings, including a church, were damaged. The following casualties have been reported : Killed, 7 men, 2 women, 1 child, total 10 ; injured, 15 men, 18 women, 3 children, total 36 ; all the above were civilians.

THE BRITISH AIR SERVICES.

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 11th inst. :—

Temporary Lieut. (R.N.V.R.) H. E. Taylor, promoted to Temporary Lieutenant-Commander (R.N.V.R.), with seniority of Aug. 9th.

Temporary Sub-Lieuts. (R.N.V.R.) C. C. Phillips and J. C. Burlison, promoted to Temporary Lieutenants (R.N.V.R.), with seniority of Aug. 7th ; and R. R. Soar, temporary commission and appointment terminated Aug. 9th, and entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Aug. 10th, and appointed to "President," additional, for R.N.A.S.

Chief Petty Officers (R.N.V.R.) G. C. Daw, A. G. Tidd, M. V. McGrath, and G. Crawley, all granted temporary commissions as Sub-Lieutenants (R.N.V.R.), with seniority of Aug. 10th, and appointed to "President," additional, for duty with Mobile Section.

Temporary Warrant Officer (R.N.V.R.) R. J. M. Hurst, granted temporary commission as Lieutenant (R.N.V.R.), with seniority of Aug. 10th, and appointed to "President," for Inspectional Duties in R.N.A.S.

The following appeared among the Admiralty announcements of the 12th inst. :—

Temporary Lieut. (R.N.V.R.) N. C. Blanch, entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of August 6th, and appointed to "President," additional, for R.N.A.S.

P. G. Allen, entered as Warrant Officer (Second Grade), for temporary service, with seniority of August 11th, and appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 13th inst. :—

The following entries have been made :

Chief Petty Officer W. G. McMinnies and R. C. M. Smith, as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of August 6th and 11th respectively ; and C. L. Hook, as Warrant Officer (Second Grade), for temporary service, with seniority of August 7th, all appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 14th inst. :—

The undermentioned have been entered as Probationary Flight Sub-Lieutenants for temporary service with the following seniority, and appointed to "President," additional, for R.N.A.S. : W. H. Peberdy, July 21st, and H. C. Irwin, Aug. 13th.

J. H. Abell, granted temporary commission as Lieutenant (R.N.V.R.), with seniority of Aug. 13th, and appointed to "President," additional, for Engineering Duties with R.N.A.S.

B. O. Warren, granted temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of Aug. 13th, and appointed to "President," additional, for Engineering Duties with R.N.A.S.

Chief Petty Officer E. W. Westcomb, entered as Warrant Officer, Second Grade, with seniority of July 9th, and appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 16th inst. :—

Commander.—R. Groves graded in R.N. Air Service as Wing-Commander. To date Nov. 15th, 1914.

F. Daly, F. Calder, M. Day, H. Jevons, N. Davenport, E. Pulling, and W. Aplin all entered as Flight Sub-Lieutenants, for temporary service, and appointed to the "President," additional, for R.N.A.S. To date Aug. 21st.

The following appeared among the Admiralty announcements of the 17th inst. :—

The undermentioned have been entered as Probationary Flight Sub-Lieutenants, for temporary service, with seniority as follows, and appointed to "President," for R.N.A.S. : C. N. Geale and C. MacLaurin, of July 21st ; and E. T. Bradley, of Aug. 21st.

Royal Flying Corps (Military Wing).

THE following appeared in the LONDON GAZETTE of the 10th inst. :—

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: John L. Williams, William J. McConnochie, Donald A. L. Davidson, Herbert P. S. Clogstoun, Alan FitzR. P. H. Somerset-Leeke, John G. McEwen, and William G. B. Williams.

To be Second Lieutenants (on probation): Rowland F. S. Morton; July 24th, 1915. Joseph A. Crook; July 26th, 1915. Herbert Lee; Aug. 3rd, 1915.

The following appeared in a supplement to the LONDON GAZETTE issued on the 11th inst. :—

Flying Officers.—July 13th, 1915: Temporary Lieut. E. W. Powell; Second Lieut. R. Balcombe Brown, R.F.A., Special Reserve; Second Lieut. A. FitzR. P. H. Somerset-Leeke, Special Reserve; Second Lieut. H. P. S. Clogstoun, Special Reserve; July 29th, 1915. July 31st, 1915: Temporary Second Lieut. C. H. Kelway-Bamber, 14th (Reserve) Batt. Royal Fusiliers (City of London Regt.), and to be transferred to the General List. Second Lieut. W. G. B. Williams, Special Reserve.

The following appeared in a supplement to the LONDON GAZETTE issued on the 12th inst. :—

To be temporary Second Lieutenants for service with the Royal Flying Corps; July 17th, 1915: Sergt. C. Seedhouse, from Motor Cyclist Section, R.E.; Pte. G. A. F. Layton, from A.S.C.; Pte. R. P. Turner, from A.S.C.

The following appeared in the LONDON GAZETTE of the 13th inst. :—

Flight-Commander.—Lieut. Bentfield C. Hucks, Special Reserve, from a Flying Officer, and to be temporary Captain whilst so employed. July 30th, 1915.

Flying Officers.—July 23rd, 1915: Second Lieut. W. A. Harvey, 4th Batt. (Territorial) Norfolk Regt.; Second Lieut. W. S. Douglas, R.F.A., Special Reserve; Lieut. R. J. Tipton, 3rd West Lancashire Brigade, R.F.A. (T.F.).

Supplementary to Regular Corps.—Second Lieut. Hamilton S. Coles to be Lieutenant. Aug. 1st, 1915.

More Honours for R.N.A.S.

THE following appeared in the despatch published in the LONDON GAZETTE on August 16th, from Vice-Admiral John M. de Robeck, reporting the landing of the Army on the Gallipoli Peninsula on April 25th and 26th :—

The following special recommendations are made of petty officers and men:

Petty Officer Mechanic John Hepburn Russell, O.N. F.839, of the Royal Naval Air Service, was wounded in gallantly going to Commander Unwin's assistance.

Petty Officer Mechanic Geoffrey Charlton Paine Rumming, O.N. F.813, Royal Naval Air Service, assisted Commander Unwin in rescuing wounded men.

Conspicuous Gallantry Medal.

Petty Officer Mechanic John Hepburn Russell, R.N. Air Service O.N. F.839.

To be Second Lieutenants (on probation): Humphrey G. Trust; Aug. 4th, 1915. Aug. 9th, 1915; Norman Pellew and Christopher W. Willcox.

The following appeared in a supplement to the LONDON GAZETTE issued on the 14th inst. :—

Wing-Adjutant.—Capt. G. Livingston, 3rd (City of London) London Regt. (Royal Fusiliers) (T.F.). July 16th.

The following appeared in a supplement to the LONDON GAZETTE issued on the 16th inst. :—

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: Ernest W. J. Payne, Francis A. G. Noel, Frank Tedman, James G. Western, Douglas A. C. Symington, Charles E. Wardle, and William D. S. Sanday.

To be Second Lieutenants (on probation); July 22nd, 1915: G. H. McLachlin, D. Joy, and C. I. Van Nostrand. July 29th, 1915: Lancelot E. M. Hayes and Frederick J. H. Thayne.

The following appeared in the LONDON GAZETTE of the 17th inst. :—

Equipment Officer.—Lieut. R. Orme, Special Reserve, and to be temporary Captain whilst so employed. July 17th, 1915.

Assistant Equipment Officers.—Second Lieut. P. H. Linthune, 10th (County of London) Batt. London Regt. (Hackney), T.F.; June 23rd, 1915. Second Lieut. E. W. J. Payne, Special Reserve; July 1st, 1915. July 18th, 1915: Second Lieut. S. L. Dashwood, Hampshire Royal Engineers, T.F.; Second Lieut. H. A. Oxenham, Special Reserve. July 31st, 1915: Second Lieut. J. G. Western, Special Reserve. Second Lieut. F. Tedman, Special Reserve; Second Lieut. F. A. G. Noel, Special Reserve. Second Lieut. H. F. T. Blowey, R.A., and to be seconded; Aug. 3rd, 1915.

Flying Officers.—Aug. 7th, 1915: Temporary Second Lieut. G. E. Harris, 13th (Reserve) Batt. Worcestershire Regt., and to be transferred to the General List; Second Lieut. D. A. C. Symington, Special Reserve; Temporary Second Lieut. O. S. Mosley-Leigh, 12th Reserve Regt. of Cavalry, and to be transferred to the General List; Second Lieut. W. D. S. Sanday, Special Reserve.

Petty Officer Mechanic Geoffrey Charlton Paine Rumming, R.N. Air Service O.N. F.813.

The despatch also discloses that the seaplane carrier "Ark Royal" and the balloon ship "Manica" were included in Rear-Admiral C. F. Thursby's squadron at the first landing north of Gaba Tepe.

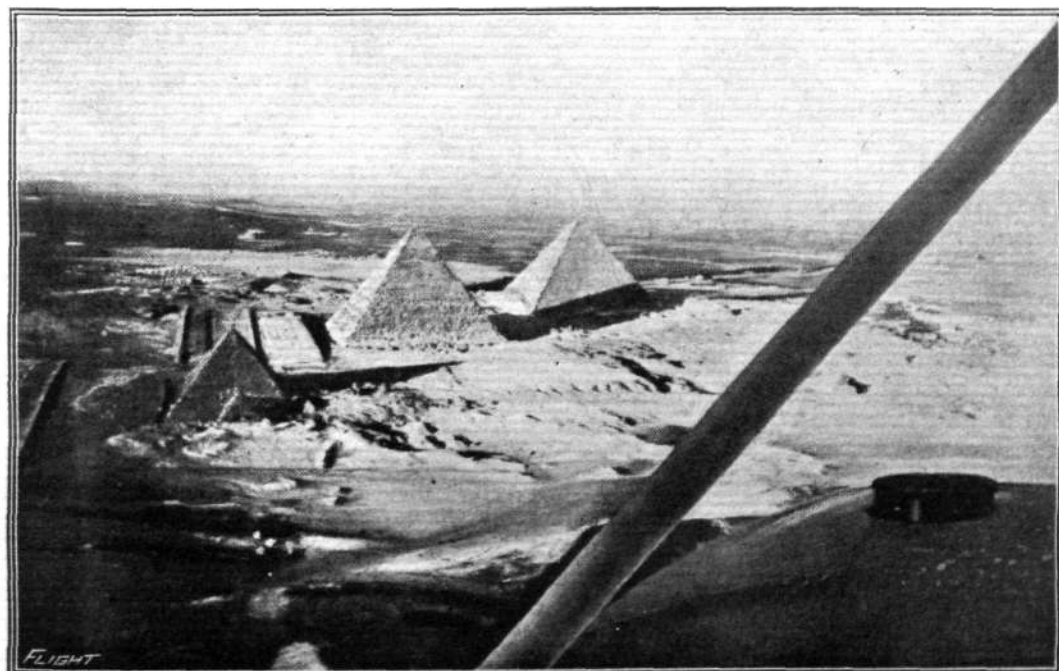
In the list of awards in connection with the Dardanelles operations which appeared in the same supplement to the LONDON GAZETTE there was the following :—

Commended for Service.

The following officers are commended for service in action: Between February 19th and April 24th.

Flight-Lieutenant (now Flight-Commander) Geoffrey Rhodes Bromet.

Flight-Lieutenant (now Flight-Commander) Ronald Hargrave Kershaw.

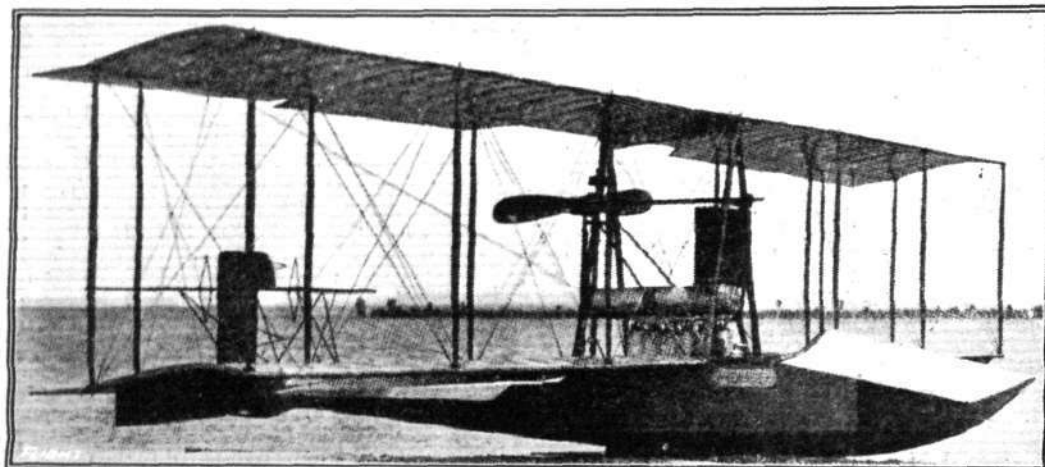


From Above.—The Pyramids, as seen from one of the Allies' warplanes. (By courtesy of Flying, U.S.A.)

THE 1915 BENOIST FLYING BOATS.

THE flying boats manufactured by the Benoist Aeroplane Co. of Chicago, Ill., are among the few—at one time the only—craft of this type in which the motor is mounted in the hull. A low centre of gravity is thus obtained, and the craft is thereby made as seaworthy as is possible, and good stability in the water is as essential as good stability in the air. It is generally accepted, however,

bottom, as before, it is now half way up in the hull, so that it is almost level with the lower plane. Here is, therefore, a compromise between the engine-in-the-hull type and the engine-between-planes type, and the arrangement appears to have given very good results. Another modification is to be found in the boat, which now has a roomier cockpit, and in place of the



Three-quarter front view of the 75 h.p. Benoist flying boat.

that a low centre of gravity in an aeroplane is not always a desirable factor where stability in the air is concerned, so it will be seen that it is a somewhat difficult proposition to so design the craft that the advantage of one condition is not to be outweighed by the disadvantage of the other. That the designer of the Benoist flying boat succeeded in surmounting this difficulty is borne out by the fact that the first machines to be built at once made a name for themselves on the score of good stability, both in the water and in the air. Many notable performances are to their credit, especially the first regular daily passenger air service between St. Petersburg and Tampa, Fla., a distance of

canvas hood over the latter there is an inverted V-shaped deck. The boat is of the single step type, very wide and deep forward, tapering to a point at the stern. The bottom is perfectly flat laterally throughout, and curves up from the step to the bow. Aft of the planes the boat has an inverted V deck, which has the advantage of allowing the water to flow off easily in the event of the waves breaking over the hull. This, and the ample free-board forward, renders the boat exceptionally seaworthy. The step is 5 ins. deep, and is situated some distance behind the centre of pressure, 10 ft. 6 ins. from the bow. From the nose to the step the hull is built up of two layers of $\frac{1}{4}$ in. spruce planks, having a

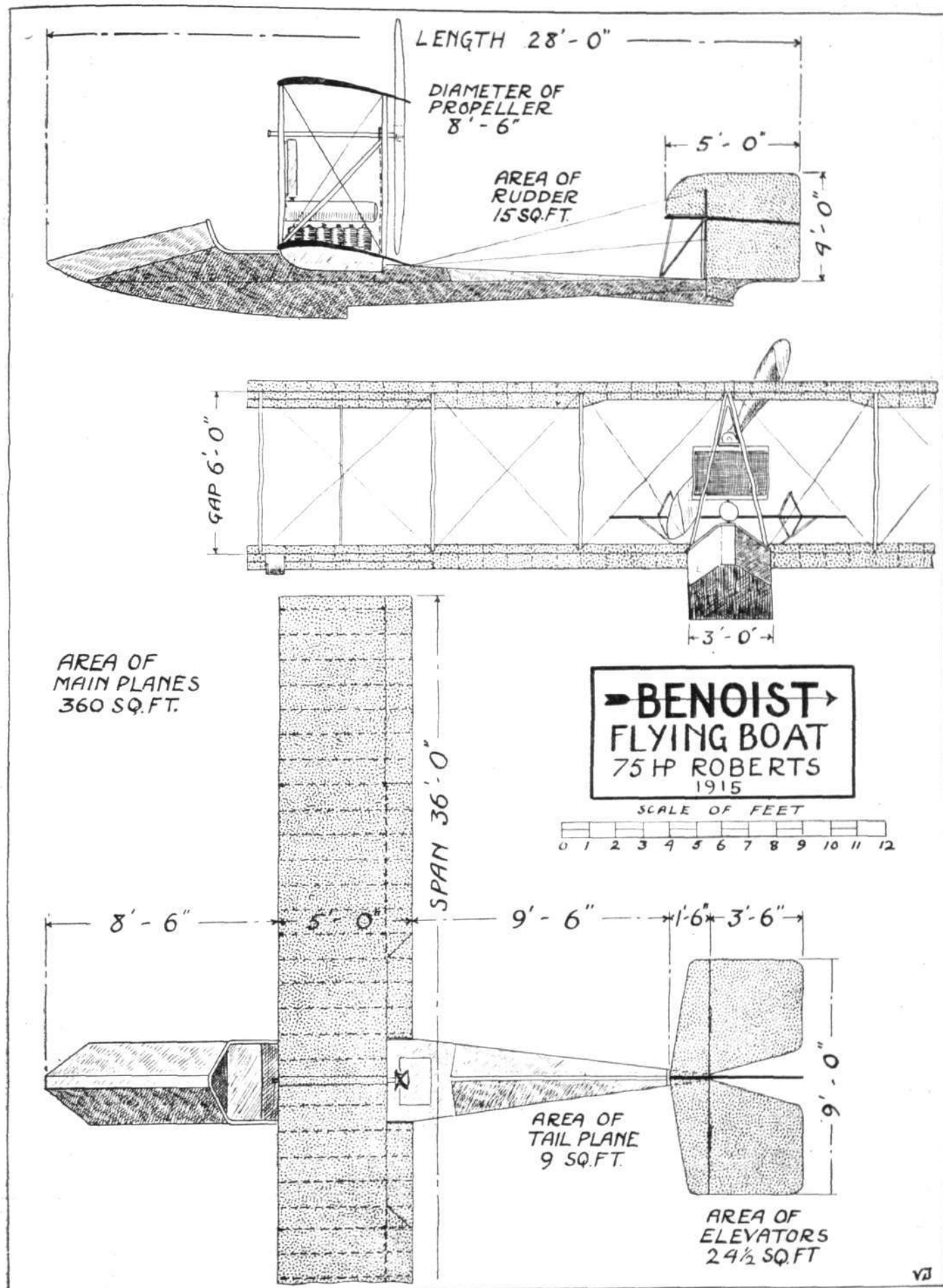


Three-quarter rear view of the 1915 75 h.p. Benoist flying boat.

about 20 miles across Old Tampa Bay, which was started on January 1st last year.

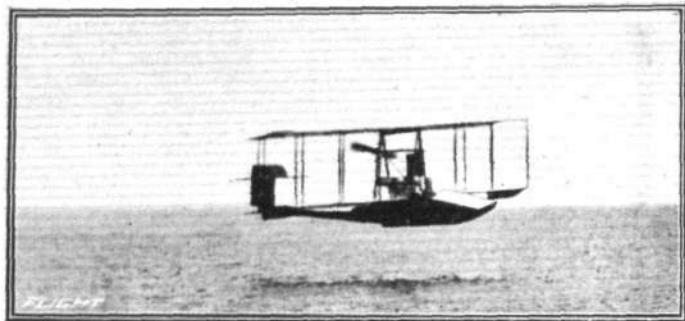
The 1915 Benoist machines differ from the previous models only in a few details, the most important of which is the location of the engine. This is still placed in the hull, but instead of being mounted on the

layer of canvas set in between, whilst aft of the step it is constructed of single $\frac{3}{8}$ in. spruce planks, which are reinforced inside at the seams with spruce battens. Spruce planking $\frac{3}{8}$ in. thick, laid in the same manner, forms the sides, and the upper portions are covered with mahogany. The framework consists of spruce longitudinals and ribs,



THE 1915 75 H.P. BENOIST FLYING BOAT.—Plan, side and front elevations to scale.

and the boat is divided into five watertight compartments. Six coats of Valspar outside and three coats inside are put on the hull, which has a total length of 24 ft. 6 ins., and the maximum beam is 3 ft. Pilot and passenger are seated side by side immediately in front of the main planes, and the engine is mounted on strong bearers between the main spars of the lower plane. Of 8 ft. 6 ins. in diameter, the propeller, mounted high up behind the main planes, is



The 1915 75 h.p. Benoist flying boat in flight.

driven at engine speed by means of a roller chain running in a tubular guard, while the pull of the chain is taken by a hollow radius rod. Mounted some two feet below the top plane the hollow steel propeller shaft extends forward as far as the cockpit, where provision is made for the engagement of a crank for starting the engine. A pair of spruce struts take thrust reaction, and at the same time contribute towards the support of the rear propeller shaft mounting.

Top and bottom planes are of equal span, 36 ft., and have a chord of 5 ft. and a gap of 6 ft. They are also each in two sections, being divided midway where they are attached to the boat in the case of the lower plane, and to the innermost interplane struts in the case of the top sections. The aforementioned interplane struts, of which there are two pairs, are arranged A fashion, and it is to the apex of the A the top plane sections are attached.

This arrangement is not only simple but forms a strong

support for both planes and propeller mounting. There are three pairs of vertical struts on either side of the boat separating top and bottom planes. The planes themselves are constructed on more or less orthodox lines, the foremost of the two main spars for each plane forming the leading edge, the other being situated one foot from the trailing edge. Hinged to each outer extremity of the rear spars of both top and bottom planes is an *aileron* measuring 7 ft. by 1 ft., all four being interconnected, so that when the pair on one side moves up the pair on the other moves down. Under each extremity of the lower plane is mounted a float for supporting the wing tips on the water when the machine is taxiing. The tail consists of a small stabilising surface of high aspect ratio, to the trailing edge of which are hinged two large elevator flaps with a partly balanced rudder in between. The lower portion of the latter is of wood and projects into the water, and thus acts as a water rudder when taxiing. The whole tail is supported about two feet above the boat by a stout ash strut extending from the stern and by a series of bracing tubes. The control is either of the Benoist or Deperdussin type, the former consisting of two levers, the right-hand one operating the *ailerons* and elevators, and the left-hand one the rudder.

If required, arrangements can be made for mounting the engine up between the planes, the main characteristics remaining as before.

The specifications of Model "A," 75 h.p. two-seater, are:—Span, 36 ft.; chord, 5 ft.; gap, 6 ft.; supporting area, 360 sq. ft.; overall length, 28 ft.; weight, empty, 1,180 lbs.; useful load, 650 lbs.

Another model, "B," a 100 h.p. for two or more passengers, is also manufactured. This machine is practically the same as model "A," with the following principal modifications:—Span, 51 ft. 6 ins.; supporting area, 497 sq. ft.; weight, empty, 1,390 lbs.; useful load, 800 lbs. The chord and gap are the same as in Model "A," and the engine can also be mounted between the planes if desired, in which case another seat is provided behind that of the pilot, where the engine would be if located in the hull. The latter is similar to that of the other model, and has a beam of 3 ft. 6 ins., and a length of 24 ft.

FLYING AT HENDON.

THE wind showed a very good speed range last Saturday afternoon, at one time putting up a velocity of about 35 m.p.h. and then dropping to a modest 10 or 15. This together with the rather stormy outlook curtailed somewhat the flying exhibitions and militated against a good "gate." After waiting patiently for something to happen, W. Birchenough at last made a flight on a tri-colour Maurice Farman "short-horn." But it was not until nearly 5 o'clock that official exhibitions commenced, when Beatty's bold bankers both began banking Beatty biplanes beautifully, blind to the boisterous behaviour of the barometer. C. B. Prodder had charge of the 60 h.p. machine, and W. Roche-Kelly the 50 h.p. They both remained up for some 10 or 15 mins., and executed all sorts of evolutions, so that one soon mixed up their identity. The next up simultaneously with a spasmodic kick of the ground anemometer was M. Osipenko on the new 50 h.p. G.-W. bi-rudder school 'bus. These pilots and machines were the only ones out until later in the evening, when school work brought other pilots, pupils, and machines into active operation. If, as on such

occasions as this particular Saturday afternoon, little airwork is to be seen, lovers of glorious sunsets are more than compensated for any lack of interest in that direction. A machine or two silhouetted against rose-tinted and gold-lined storm clouds as was witnessed on Saturday is a sight not easily forgotten. It was almost weird in its great beauty.

Sunday's weather was still stormy, although on the whole it was a much smoother day. There was a little more flying than on the previous day, with the addition of a few extra pilots and machines. The Grahame-White stud, Marcus D. Manton, M. Osipenko, and J. S. B. Winter, were busy with passengers on the 50 h.p. G.-W. school 'buses, whilst C. B. Prodder represented the Beatty stable on the 60 h.p. Beatty-Wright. J. L. Hall brought out his 45 h.p. Caudron, whilst similar-type machines made their appearance in the 50 h.p. and 60 h.p. Ruffy-Baumann biplanes, flown by G. Virgilio and E. Baumann respectively. As usual, school work formed an interesting conclusion to the afternoon's programme.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Aviators' Certificates.

THE following Aviators' Certificates have been granted:—

- 1518 Flight Sub-Lieut. Stanley Beckett Joyce, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). June 7th, 1915.
- 1519 H. S. Ince (Curtiss Biplane, Curtiss School, Toronto, Canada). July 11th, 1915.
- 1520 F. Homer Smith (Curtiss Biplane, Curtiss School, Toronto, Canada). July 11th, 1915.
- 1521 D. A. Hay (Curtiss Biplane, Curtiss School, Toronto, Canada). July 12th, 1915.
- 1522 Grant A. Gooderham (Curtiss Biplane, Curtiss School, Toronto, Canada). July 12th, 1915.
- 1523 Cornelius Innes Van Nostrand (Curtiss Biplane, Curtiss School, Toronto, Canada). July 12th, 1915.
- 1524 2nd Lieut. Hugh Claude Wakefield (11th East Surrey Regt.) (Maurice Farman Biplane, Military School, Birmingham). July 15th, 1915.
- 1525 Douglas Grahame Joy (Curtiss Biplane, Curtiss School, Toronto, Canada). July 20th, 1915.
- 1526 Claire MacLaurin (Curtiss Biplane, Curtiss School, Toronto, Canada). July 20th, 1915.
- 1527 Eric Harrington McLachlin (Curtiss Biplane, Curtiss School, Toronto, Canada). July 20th, 1915.
- 1528 Charles Norman Geale (Curtiss Biplane, Curtiss School, Toronto, Canada). July 20th, 1915.
- 1529 Warner Hutchins Peberdy (Curtiss Biplane, Curtiss School, Toronto, Canada). July 20th, 1915.
- 1530 George Edward Duller (Maurice Farman Biplane, Military School, Brooklands). July 21st, 1915.
- 1531 Flight Sub-Lieut. Louis Clement Keeble, R.N.A.S. (Caudron Biplane, Royal Naval Air Station, Eastbourne). July 29th, 1915.
- 1532 Lieut. Gilbert Klingenstein, A.S.C. (Maurice Farman Biplane, Military School, Shoreham). Aug. 4th, 1915.
- 1533 2nd Lieut. Leonard Kingdon (Worcestershire Regt.), (Maurice Farman Biplane, Military School, Farnborough). Aug. 4th, 1915.
- 1534 Percy Snowden (Hall Biplane, Hall School, Hendon). Aug. 4th, 1915.
- 1535 Charles Dawson Booker (Hall Biplane, Hall School, Hendon). Aug. 4th, 1915.
- 1536 2nd Lieut. John Reginald Philpott (10th Suffolk Regt.) (Hall Biplane, Hall School, Hendon). Aug. 5th, 1915.
- 1537 2nd Lieut. Edward Henry Paul Cave, A.S.C. (Maurice Farman Biplane, Military School, Farnborough). Aug. 5th, 1915.
- 1538 Capt. Richard Graham Blomfield (Surrey Yeomanry), (Maurice Farman Biplane, Military School, Ruislip). Aug. 6th, 1915.
- 1539 Ernest Alfred Gay (Hall Biplane, Hall School, Hendon). Aug. 7th, 1915.
- 1540 Ernest William Barrett (Maurice Farman Biplane, Military School, Brooklands). Aug. 7th, 1915.
- 1541 Flight Sub-Lieut. Francis Edward Philip Barrington, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 7th, 1915.
- 1542 Hydro-aeroplane.—Ronald Buck (Avro Seaplane and N.A.C. Seaplane, Northern Aircraft Co., Windermere). Aug. 7th, 1915.
- 1543 2nd Lieut. Wynyard Astell (2/1 Lovat's Scouts) (Maurice Farman Biplane, Military School, Farnborough). Aug. 8th, 1915.
- 1544 2nd Lieut. Kenneth Harries Riversdale Elliot (The Cameronians) (Maurice Farman Biplane, Military School, Farnborough). Aug. 8th, 1915.
- 1545 Flight Sub-Lieut. Wilfrid Perham, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 8th, 1915.
- 1546 Eric Arthur Cave (Maurice Farman Biplane, Military School, Brooklands). Aug. 9th, 1915.
- 1547 Lieut. Dermot James Sheridan (Royal Irish Fusiliers), (Maurice Farman Biplane, Military School, Birmingham). Aug. 9th, 1915.
- 1548 Hugh Tomlinson (Beatty-Wright Biplane, Beatty School, Hendon). Aug. 9th, 1915.
- 1549 John Bernard Fitzsimons (Caudron Biplane, Ruffy-Baumann School, Hendon). Aug. 9th, 1915.
- 1550 2nd Lieut. Alastair George Lionel Joseph Miller (Irish Guards), (Maurice Farman Biplane, Central Flying School, Upavon). Aug. 9th, 1915.
- 1551 Reid Antony Railton (Caudron Biplane, Ruffy-Baumann School, Hendon). Aug. 9th, 1915.
- 1552 Flight Sub-Lieut. John Emil Morgan, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). Aug. 9th, 1915.
- 1553 2nd Lieut. Charles Sandford Wynne-Eyton, R.F.A. (L. and P. Biplane, London and Provincial School, Hendon). Aug. 9th, 1915.
- 1554 Flight Sub-Lieut. Alfred Montague Blake, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 9th, 1915.
- 1555 2nd Lieut. Arthur Vivian Burbury (Yorkshire Regt.) (Maurice Farman Biplane, Military School, Farnborough). Aug. 10th, 1915.
- 1556 Francis King (Caudron Biplane, Beatty School, Hendon). Aug. 10th, 1915.
- 1557 Flight Sub-Lieut. Stanley James Goble, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). Aug. 10th, 1915.
- 1558 James William Gordon (Hall Biplane, Hall School, Hendon). Aug. 10th, 1915.
- 1559 Flight Sub-Lieut. Stanley Kemball, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). Aug. 10th, 1915.
- 1560 2nd Lieut. Philip George Scott (9th Gloucester Regt.) (Maurice Farman Biplane, Military School, Birmingham). Aug. 10th, 1915.
- 1561 Flight Sub-Lieut. Lancelot de Giberne-Sieveking, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 10th, 1915.
- 1562 Theodore Marburg, Jun. (Maurice Farman Biplane, Military School, Brooklands). Aug. 11th, 1915.
- 1563 Robert W. Nichol (Maurice Farman Biplane, Military School, Brooklands). July 5th, 1915.
- 1564 Flight Sub-Lieut. Harold George Henley, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). July 29th, 1915.
- 1565 Hugh Anselm Boulton Robb (Caudron Biplane, Beatty School, Hendon). July 29th, 1915.
- 1566 A. T. Cowley (Curtiss Biplane, Curtiss School, Toronto, Canada). July 30th, 1915.
- 1567 A. J. Nightingale (Curtiss Biplane, Curtiss School, Toronto, Canada). July 30th, 1915.
- 1568 R. D. Delemere (Curtiss Biplane, Curtiss School, Toronto, Canada). July 30th, 1915.
- 1569 Gordon Lindsay Rutherford (Caudron Biplane, Beatty School, Hendon). July 30th, 1915.
- 1570 Flight Sub-Lieut. Basil Frederick Murray Hughes, R.N.A.S. (Maurice Farman Biplane, Royal Naval Flying School, Eastchurch). Aug. 2nd, 1915.
- 1571 Flight Sub-Lieut. Colin Roy Mackenzie, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Aug. 2nd, 1915.
- 1572 Flight Sub-Lieut. Colin Laurence, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Aug. 6th, 1915.
- 1573 Capt. Ivor Dudley Truman, A.S.C. (Maurice Farman Biplane, Military School, Ruislip). Aug. 6th, 1915.
- 1574 George Aubrey Cox (Maurice Farman Biplane, Central Flying School, Upavon). Aug. 9th, 1915.
- 1575 Capt. Bernard Vernon Harcourt (Maurice Farman Biplane, Military School, Shoreham). Aug. 10th, 1915.
- 1576 Lieut. Lionel Berry (Maurice Farman Biplane, Military School, Shoreham). Aug. 10th, 1915.
- 1577 Otto Lerwill (Maurice Farman Biplane, Military School, Brooklands). Aug. 11th, 1915.
- 1578 Flight Sub-Lieut. Ryder Young, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). Aug. 11th, 1915.
- 1579 Arthur Thomas Thompson (Maurice Farman Biplane, Military School, Brooklands). Aug. 12th, 1915.

- 1580 Cecil Faber (Maurice Farman Biplane, Military School, Brooklands). Aug. 12th, 1915.
- 1581 Flight Sub-Lieut. Wesley Howard Oakey, R.N.A.S. (Caudron Biplane, Royal Naval Flying School, Eastchurch). Aug. 12th, 1915.
- 1582 Lawrence Hay Thomson Sloan (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Aug. 12th, 1915.
- 1583 Brig.-General Lewis Montgomery Murray Hall, C.B. (L. and P. Biplane, London and Provincial School, Hendon). Aug. 12th, 1915.
- 1584 Flight Sub-Lieut. Leslie Ethelbert Ruthven Murray, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Aug. 12th, 1915.
- 1585 George MacDougall Turner (Maurice Farman Biplane, Military School, Ruislip). Aug. 12th, 1915.
- 1586 Flight Sub-Lieut. Warren Rawson Mackenzie, R.N.A.S. (Maurice Farman Biplane, Royal Naval Flying School, Eastchurch). Aug. 13th, 1915.
- 1587 Corporal Eric Henry Dobson (Maurice Farman Biplane, British Flying School, Le Crotoy, France). Aug. 13th, 1915.
- 1588 2nd Lieut. Christopher Hutchinson Jenkins (Maurice Farman Biplane, Military School, Farnborough). Aug. 13th, 1915.
- 1589 2nd Lieut. James Theodore Rodwell (12th Essex Regt.), (Maurice Farman Biplane, Military School, Birmingham). Aug. 13th, 1915.
- 1590 2nd Lieut. George Bernard Ward (9th North Stafford Regt.), (L. and P. Biplane, London and Provincial School, Hendon). Aug. 13th, 1915.
- 1591 Lieut. William Alfred Courtenay Heyman (4th (Queen's Own) Hussars) (Maurice Farman Biplane, Military School, Farnborough). Aug. 13th, 1915.
- 1592 Ernest Selby (Maurice Farman Biplane, Military School, Brooklands). Aug. 15th, 1915.
- 1593 Walter Eric M. Suidolph (Maurice Farman Biplane, Military School, Brooklands). Aug. 15th, 1915.

- 1594 Walter Dalrymple Maitland Bell (Maurice Farman Biplane, Military School, Brooklands). Aug. 15th, 1915.
- 1595 Henry Longfield Conner (L. and P. Biplane, London and Provincial School, Hendon). Aug. 15th, 1915.

AMERICAN CERTIFICATES.

- 29 Hydro-aeroplane.—Hugh A. Peck (Thomas Hydro-aeroplane, Ithaca, New York). July 21st, 1915.
- 30 Hydro-aeroplane.—Frank S. McGill (Thomas Hydro-aeroplane, Ithaca, New York). July 21st, 1915.
- 335 J. Morrow Alexander (Wright Biplane, Wright School, Dayton, Ohio). July 22nd, 1915.

THE FLYING SERVICES FUND

administered by

THE ROYAL AERO CLUB.

The Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.		£	s.	d.
Total subscriptions received to August 11th, 1915		9,451	4	9
Claude Johnson	...	10	10	0
J. E. Nixon	...	1	0	0
Stewart Margetson	...	25	0	0

Total, August 18th, 1915 ... 9,487 14 9

166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

FROM THE BRITISH FLYING GROUNDS.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Straights last week with instructor: Probationary Flight Sub-Lieuts. Beare, Ford, Gasson, Roach-Pierson, Corry, Smethurst, Biscoe, Cross, Gammon, Sadler, Davies and Hadow. Straights alone: Probationary Flight Sub-Lieuts. Beare and Roach-Pierson. Eights and circuits: Probationary Flight Sub-Lieuts. Blake, Murray, and Sieveking. Tickets taken during the week:—Probationary Flight Sub-Lieuts. Perham, Blake, Murray and Sieveking.

Instructors: Messrs. Manton, Russell and Winter.

Beatty School.—The following pupils were out during last week with instructors on Beatty-Wright machines: Messrs. Arbon (36 mins.), Berridge (23), Bond (20), Crossman (55), Delves (75), Dickenson (115), Eaton (30), Fellowes (5), FitzHerbert (20), Fox (41), Greenhill (18), Hoskins (5), T. Jones (55), King (47), Litton (16), Nash (10), Ross (74), Smith (20), Spicer (10), Theo (69), Thompson (5), Tolhurst (10), Vickers (20), Willmet (19), Zimmermann (16), Everidge (46), Hoskier (10). On Caudron machines: Messrs. Arter (10 mins.), Boysen (40), Broadbent (20), Cadogan (45), Coates (50), Collett (30), Cox (10), Davison (30), Fawcett (20), Fellowes (5), Goodfellow (20), Greenhill (10), Hoskins (10), L. F. Jones (20), Kirkwood (10), Middleton (20), Moxon (15), Nicholson (20), Overton (5), Owen (20), Whincup (15), Wiles (5), Campbell (60), Thomas (35), Summers (30), Mellings (25), Hoskier (10), Bowick (20), Begg (20), Collier (25), Grant-Suttie (35).

The instructors were Messrs. G. W. Beatty, W. Roche-Kelly, C. B. Prodger, R. Kenworthy and A. E. Mitchell, the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes and Caudron tractors.

Certificates were taken during the week by Messrs.

Tomlinson, F. King, Eaton and Spicer, each of whom made excellent flights.

Exhibition flights were given on Thursday, Saturday and Sunday, and 11 passenger flights were taken.

Hall School.—An excellent week's work at the School last week, practice fortunately not being hampered by the terrific thunderstorms. J. W. Gordon qualified for his Aero Club certificate, which he took in great style.

Pupils receiving instruction with Mr. Stevens were Messrs. Lieut. Jowett (2 straights and 3 circuits), Mr. Bell (3 straights and 4 circuits and 1 figure of "8"), Gordon (2 circuits and figures of "8"). With Instructor Cecil M. Hill: Messrs. Huggan (58 mins.), Watson (31), Littlewood (31), Lieut. Jowett (26), Hatchman (30), Wilkins (14), Goodrich (46), Hooker (20), Bell (30), Hamer (26), Drew (14), F. Hall (40), Butterworth (10), Arnsby (14), Sepulchre (23), Jonge (50), Mason (10), Ackroyd (7), Scott (8), Cook (24), Broad (10), Bayley (7), Russell (32). Machines in use: Hall tractor biplanes.

The following pupils are showing special aptitude, and are now practically ready to take their certificates: Messrs. Bell, Lieut. Jowett and Mr. Goodrich.

London and Provincial Aviation Co.—Pupils doing rolling last week: Messrs. Franklin, Sargood, Rochford, May, Maze, and Willcox. Straights: Messrs. Woodley, Roe, Moynihan, Conner, Scott, and Frost. Circuits: Messrs. Sykes, Wynne-Eyton and Ward.

On Monday, the 9th inst., Lieut. Wynne-Eyton took his *brevet* in fine style, after only twelve days' tuition, and on the 12th inst. Mr. Sykes passed for his certificate, making a good steady flight. On the 13th inst. another good certificate was taken by Lieut. G. Bernard Ward, who has only been in the school nine days, and on the 15th inst. Mr. H. Conner also passed well.



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.

A quartette of pilots who have recently secured their certificates at the Hall Flying School, Hendon.—1. Mr. R. Gay, August 7th. 2. Mr. P. Snowden, August 4th. 3. Lieut. J. R. Philpott, August 6th. 4. Mr. T. D. Booker, August 4th.

Instructors: Messrs. M. G. Smiles, W. T. Warren, J. H. James, G. Irwing and C. Jacques.

Ruffy-Baumann School.—Mr. Norman Wallis passed for his certificate on one of the 50 h.p. 'buses, and the following pupils were practising on the 60 h.p. R.-B. and 50 h.p. Caudron type biplanes:—Belton (32 mins.), Ovens (16), Young (24), Bailey (28), Liddell (18), Hughes (48), Prothero (16), Stewart (36), Muspratt (42), Rees, (46), May (2), Wilson (34), Gardner (26), Wallis (30).

Instructors: Edouard Baumann, Felix Ruffy, Gino Virgilio, and Clarence Winchester.

The telephone is now affixed, the number being: Kingsbury 151.

Midland Flying School, Birmingham.

OWING to pupils taking vacation the previous week very little school work was done last week. The bad weather compelled the instructor to be with every pupil in rolling and straights. The following pupils were out

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The King at Aldershot.

THE keen interest taken by H.M. the King in the progress of the Royal Flying Corps was again demonstrated on Wednesday afternoon last, when, accompanied by the Queen and Princess Mary, the Royal Aircraft Factory was inspected and some time spent in watching the work of the pilots attached to the factory and officers of the Royal Flying Corps.

Rhodesia Gives a Second Aeroplane.

A CABLE message has been received from Salisbury requesting the British South Africa Co. to pay a further sum of £1,500 over to the Imperial Government for the purchase of another 70 h.p. aeroplane or similar machine, as a gift from the people of Rhodesia, for the use of the Royal Flying Corps. The aeroplane is to bear the name "Rhodesia No. 2."

during the week: L. Monfee, Choyd, Mento, J. Tzesing, C. Cheung, W. Watson, K. M. Chan, C. Kayfong, K. Jokping, each making two 10-min. trips. Instructor: S. Summerfield.

The construction of new machines is making favourable progress.

Northern Aircraft Co., Ltd.

The Seaplane School, Windermere.—Last week with instructor the following pupils were at work: Inglis (5 mins.), Lawton (15), Latch (56), Robertson (42), Reid (7), Yates (16), Ingham (14). With pilot in passenger seat: Macaskie (24 mins.), Slingsby (12). Machines in use: N.A.C. 50 h.p. Gnome propeller biplane, and N.A.C. 80 h.p. Gnome pusher monoplane. Instructors: W. Rowland Ding and J. Lankester Parker.

J. Lankester Parker testing on both machines. Robertson making exceptional progress.

Although there was flying on every day except Wednesday, wind or rain limited school work.

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Recruiting for South Africa's R.F.C.

A MESSAGE to hand from Pretoria last week stated that recruits were being called for to form South African units of the Royal Flying Corps.

New Lighting Order.

By the new order, under the Defence of the Realm Act, as to lighting in London, which came into force last Sunday, all the provisions of previous orders as regards reduced lighting are retained, the hours affected being: August, 8.30 p.m. till sunrise; September, 7.30 p.m. till sunrise; October, 6 p.m. till sunrise and until further notice. The lighting-up time for vehicles has, however, been changed; lamps must now be lighted half-an-hour after sunset, and they must be kept alight until half-an-hour before sunrise.

EDDIES.

ACCORDING to the American aeronautical press, the Russian Government has ordered two large Curtiss aeroplanes of the flying-boat type for its Navy. Russia's new flying-boats will be of the same size as the "America," on which Commander J. C. Porte was to have crossed the Atlantic, but whereas the total horse-power of the "America" was about 168, that of the new flying-boats for Russia will be 320, furnished by two engines. The hull will be different in design from that of the "America,"



Adjutant-Aviateur Louis Noel.

and will be specially arranged for mounting a gun and carrying a large supply of bombs. The speed of the new machines is expected to be about 80 miles an hour, and if our contemporaries are correct, they will be able to carry a useful load of 3,000 lbs.

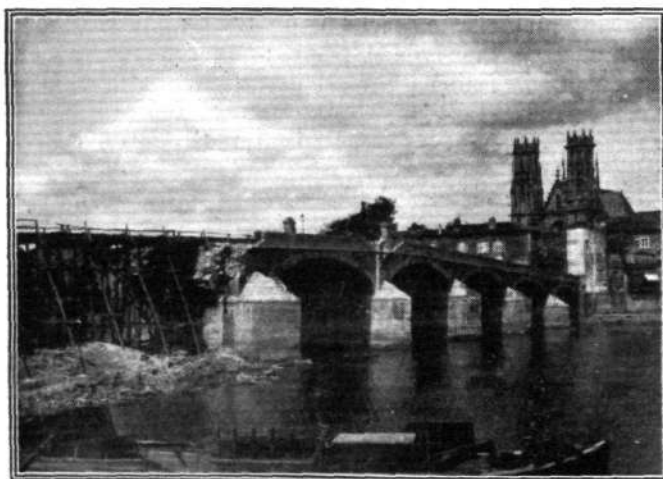
x x x

Adjutant-Aviateur Louis Noel, Escadrille M.F. 44, who is as usual in the best of spirits, and "still going strong," is this week again amongst my correspondents from "over there," as witness the portrait and snap which appear on this page. About himself Noel, the modest, has very little to say, though the decorations on his breast speak for themselves. He is still flying a Maurice Farman, and seems to like it, in spite of its stately pace, which allows the faster German machine to get clear away. Evidently the service M.Fs. are as good gliders as were the older machines on which Noel and Verrier used to do their flat glides at Hendon, for Noel says that the other day he stopped his propeller at 2,700 metres, and planed down, watch in hand, the *vol plané* taking fifteen minutes. Noel is full of praise for another old-time Hendon pilot, Charles Hubert, who, he says, is indeed doing very well, and is already Sergeant. His 'bus has been hit several times, and if he keeps on like he has been doing, he will probably obtain "distinction" before long. Noel, once again, sends greeting to his many friends over here.

From a correspondent in Holland I have received a report of an accident that happened to a well-known German pilot, Kanitz, at the Niederneuendorf Aerodrome near Berlin. "Kanitz," my correspondent says, "who had been in the field since the beginning of the war, and had been awarded the Iron Cross, was only a few days in Berlin in order to put a new machine through its trials at Niederneuendorf. One afternoon he went up with a mechanic as passenger, and made a long flight over the aerodrome. While coming down to make a landing, the onlookers saw the big biplane dive down from a height of 50 metres and crash to the ground. Arriving on the spot, they found the machine totally smashed and pilot and passenger killed."

x x x

The same Dutch correspondent sends the following translation of a report appearing in a German paper: "The Albatros biplane of Lieut. Gr. was reconnoitring over Solec (Poland), when he was attacked by three Russian Moranes who seemed to be keeping guard over one of the bridges on the Vistula. Lieut. Gr. tried to escape westwards in the direction of the German lines, but each time he was cut off by the faster monoplanes, which kept flying round him at a distance of 200 metres, getting more impertinent every minute. The wind was very strong, so the big biplane hardly made any headway, while the light Russian machines kept peppering him with machine guns every time they had the chance. The sun was setting, and it was getting darker and darker. The German pilot was growing desperate, as the Russians would not let him escape. The only way was to the south, where the Austrians were. A lucky shot hit one of the Moranes and forced him to come down. The German took the chance immediately, and plunged in a southern direction. The Russians followed him for a little while, but, as it was by then getting very dark, they ultimately had to give up the chase." If the report



A suggestive photo. from Louis Noel. Pont-à-Mousson as is to-day. Note the handiwork of friend and foe, including aviators' help.

translated by my correspondent is correct, it would appear that the Russian army is employing not only the huge Sikorsky biplanes, but finds a use for the entirely different type, the little fast Morane monoplanes.

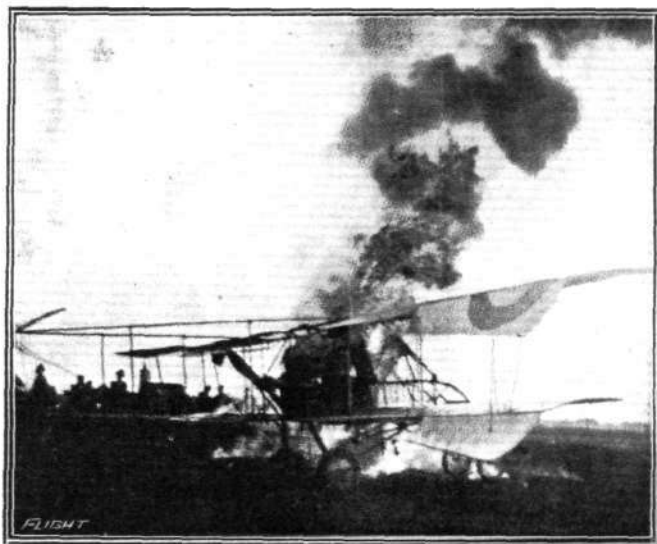
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During a chat the other day with a friend who has seen several months of service out at the front, a remark was dropped which, quite unintentionally on his part,

furnished a striking illustration of the difference in methods of our own and the enemy's aviators. He was relating in a typical, unassuming way one of his many bomb-dropping excursions to points of military importance, and told of how, one day when his mission was to get home on a certain building, he slightly overflew his objective, and had to make a detour before being able to launch his bombs on the mark with decent certainty. It was evident that to him and his brother pilots this was so much a matter of course as to require no special emphasis, and it was told quite incidentally. All the while he was being peppered by anti-aircraft guns, and it does not require a very vivid imagination to appreciate how great must have been the temptation to let loose right away the whole cargo of bombs, seeing that a bullet or fragment of shell might at any moment explode the lot and blow him and his machine to "kingdom come." When comparing the self-restraint that enables a man to refrain from dropping his bombs where innocent civilians might be injured, and to prefer running the maximum of risk in order to make sure of hitting the sought-for mark, and hitting that only, with the indiscriminate way in which the enemy's aviators scatter their missiles broadcast, one begins to appreciate more and more the spirit that has enabled our aviators to establish the personal ascendancy referred to by Sir John French in his despatches.

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When one comes to consider the nature of aerial trips over hostile territory, be they reconnaissance flights, range-finding, or bomb-dropping expeditions, subject all the while to the liveliest fire from anti-aircraft guns, it really seems a marvel that pilots, and observers too for that matter, do not suffer from nervous breakdown after a



A French Voisin brought down by the Germans in Breisgau. The French officers managed to set fire to the machine before being captured.

few weeks of such gruelling. Imagine a machine going about its business with shells bursting all around, the observer being on the look-out for the object of the flight, while the pilot is keeping an eye on the missiles, so as to change his altitude when they begin to burst uncomfortably close, and at the same time watching his instruments and having an occasional look round to see that his machine and observer are all there. There are several instances of planes returning with stay wires cut, with chunks of metal from shell fragments stuck in inter-

plane struts, with spars partly cut through and petrol tanks pierced. One pilot returning from a flight on a Maurice Farman found on landing that both the upper tail booms were nearly severed, one being half cut through and the other hanging by only a thin splinter. When to these dangers of breakage in the air is added attacks by hostile aviators, armed with machine guns, trying to "get" the pilot or observer, an opinion—only an inkling of course, but still some idea—can be formed of the terrific strain to which these riders of the air are subjected.

x x x

Week in and week out we receive proof of the thoroughness with which our readers peruse the pages of *Flight*,



READY! A German military biplane awaiting the order to start.

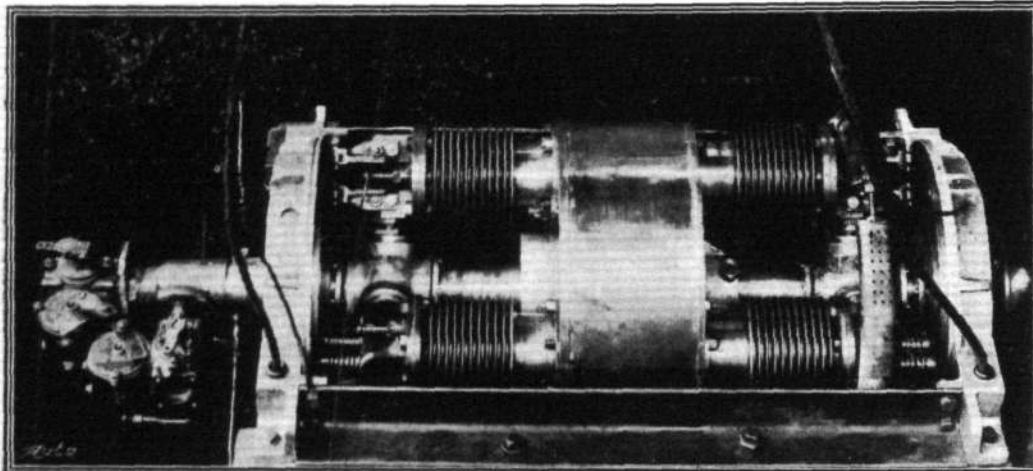
a case in point being an anonymous letter sent me the other day by a writer who, after reading the par. in "Eddies" of last week about Hawker's little flight on the Beatty-Wright, sends the following "laconicism": "*Flight*, Vol. 4, page 1005, 'British Notes of the Week,' paragraph 1. Really! 'Æolus' should read his own paper (or go to the front and let a woman come in)." Well, to be quite frank, at the time of writing the par. Hawker's excellent performances on fast Sopwith machines was so vivid in my memory as to exclude temporarily his 8 hrs. 23 mins. flight on the Sopwith-Wright for the Michelin Cup in 1912. Anyhow, had I wanted to "wriggle out" I might have stated in defence that the par. in question did not state that Hawker had never flown a Wright, but that *most* of his experience had been gained on high-powered fast Sopwith machines. The anonymous note would, under ordinary circumstances, have gone straight to the wicker-work structure, resembling the fighting top of an American battleship, at the side of my desk. But I stayed my hand by reason of the feminine handwriting, the evidence of the use of scissors in insulating the par. from "Eddies," which a mere man would have accomplished by jaggling it with his pocket knife or by simply tearing it off, and the up-to-date advice given in the last part of the letter, all unmistakably indicating a lady reader. Under those circumstances I could hardly consign a scented (at least I think it was, but am not certain, as I am at present enjoying a cold) epistle to the w.p.b. Could I now?

"ÆOLUS."

A NEW ROTARY ENGINE—THE "MAUDE."

EVER since M. Laurent Seguin, the designer of the "Gnome" engine, first demonstrated the possibility of combining light weight and smooth running in the rotary engine, motors of this type have had a certain fascination for designers, and numerous examples have appeared with varying success, some of them being highly ingenious. However much these have differed in detail design, some having automatic and others mechanically operated inlet valves, some admitting the mixture through an internal hollow shaft *via* valves in the piston and others through external radial induction pipes, they

the engine from end to end. One half of this tubular shaft is stationary and carries on its outer end the carburettor. Near the centre of the engine this shaft has mounted on it a stationary bevel wheel engaging with the bevel wheels of the crank shafts. The other half of the tubular shaft is keyed to and revolves with the crank case, and a mixture tight joint is formed between the two halves of the shaft by means of a gunmetal bush, which is made a driving fit in the stationary portion of the shaft and a working fit in the rotating part of the shaft. A ball thrust bearing is interposed



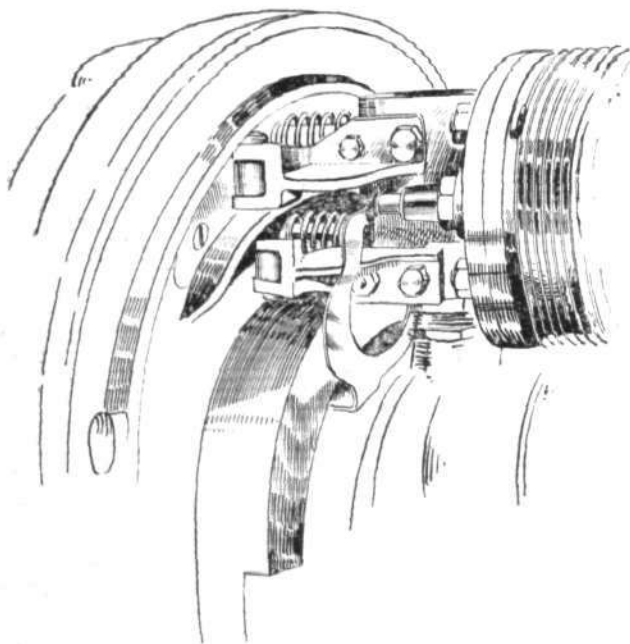
The "Maude" rotary engine.

have, almost without exception, had this in common, that they have been of the radial type.

In the "Maude" engine an entirely different arrangement has been adopted, as will be seen from the accompanying illustrations. Instead of radiating from a common centre, the cylinders are parallel to the axis of rotation and are arranged in two groups, one at each end of the engine. Although working on the "Otto" or "four stroke" cycle, the twelve-cylinder "Maude" engine gives twelve explosions per revolution, a fact which at first tends to give one the impression that it works on the "two-stroke" principle. It may

between the latter and the former. The revolving portion of the shaft is extended beyond the front engine plate, and on this extension, which, it will be understood, revolves with, and at the same speed as, the engine, is mounted the propeller, the necessary thrust and journal ball bearings being provided.

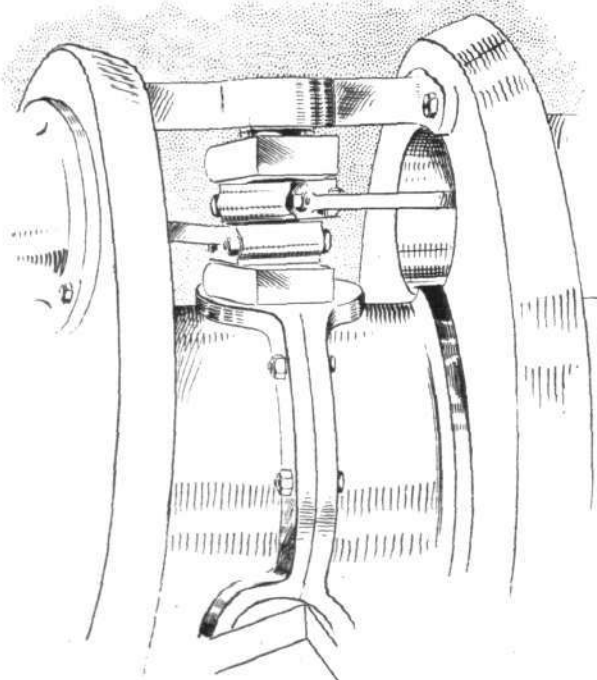
From the crank case, which, broadly speaking, takes the form of a drum, the cylinders project parallel to the central shaft, being arranged in pairs. Pistons of opposing cylinders are connected to a



Valve mechanism of one of the cylinders of the "Maude" rotary engine.

sound somewhat Irish to say that the cylinders revolve at half-engine speed or that they are mounted on the half-time shaft, but both statements are in a measure correct. The key to the whole apparently complicated situation rests in the gearing between the crankshafts and the central stationary shaft.

From the sectional side view of the engine it will be seen that a hollow shaft of large diameter runs throughout the entire length of



Sketch showing one of the cranks with connecting rods of the "Maude" rotary engine.

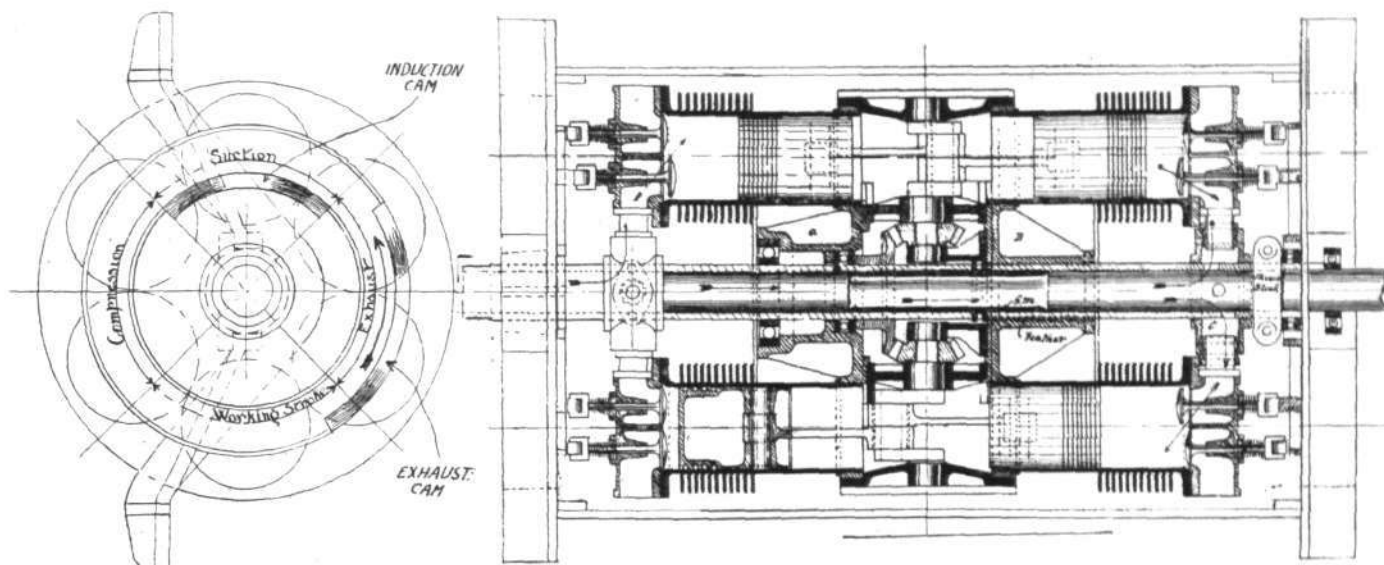
small single-throw crank shaft working in plain bearings. It will be seen that for a twelve cylinder engine there will be six of these small crank shafts. On the inner end of each of these is a bevel wheel engaging with the fixed bevel wheel on the stationary portion of the central shaft, the gear ratio being two to one. From this it follows that when the engine has made one whole revolution the six crankshafts have made twice as many, *i.e.*, two revolutions

each, and, therefore, the pistons have passed through four strokes, completing the whole cycle for one revolution of the cylinders.

As regards the valves, these, it will be seen, are both situated in the cylinder heads and are operated direct by cams on the circular engine plates, shoes pivoted at one end being interposed between the valve stems and the cams. By suitably arranging the position and length of these the most suitable valve timing may be obtained. Short induction pipes lead to the inlet valve casings from drums round the central hollow shaft, the drum for the set of cylinders surrounding the revolving portion of the central shaft being a tight fit on the shaft, while the other drum revolves round the fixed portion of the shaft. From the carburettor the mixture is drawn through the

occur at regular intervals of 30° , the order of firing being, when numbering as previously the one set of cylinders 1, 3, 5, 7, 9, 11, and the other 2, 4, 6, 8, 10, 12, where firing and exhaust together in opposing cylinders: 1-12-3-2-5-4-7-6-9-8-11-10-1. For firing and exhaust together in corresponding cylinders, the order of firing would be 1-6-3-8-5-10-7-12-9-2-11-4-1.

Lubrication is by forced feed, the oil passing from the pump through copper tubes contained in the hollow shaft to a swelling in the central gunmetal bush, whence it passes through an opening in the wall of the bush and in the shaft into the oil channels of the respective crank shafts as they pass the opening. From there the oil runs through passages in the crank shafts, crank webs and crank



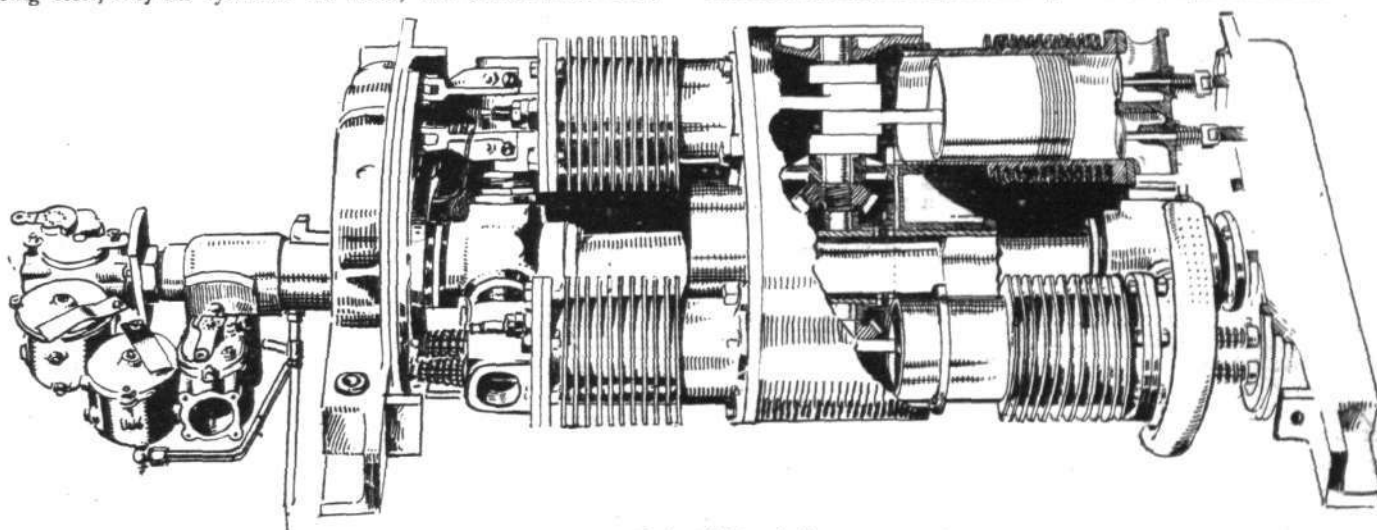
Sectional view of the "Maude" rotary engine.

hollow shaft to the two sets of cylinders, admission to which is gained through openings in the walls of the shaft, and through the short induction pipes. The exhaust gases are either passed directly out into the open or a tubular ring fitted with baffle plates or narrow slots to form a silencer may be fitted so that it connects the exhaust ports of one set of cylinders.

The order of firing will, of course, depend upon the number of cylinders, and will also be determined by the placing, relatively, of the two sets of cams. In the experimental engine now undergoing tests, only six cylinders are fitted, two sets of three each,

pins to the big end bearings and hence through channels in the connecting rods up to the cylinder walls *via* the hollow gudgeon pins.

Although the cooling problem does not appear to give any trouble in the experimental engine, it would seem that when the full number of cylinders were fitted the inner half of all cylinders would get very little air and distortion might result. It is even a question whether for large high-powered engines of this type it would not be better to resort to water cooling. This would, of course, necessitate considerable alterations, and among others the cylinders would have



Diagrammatic view of the "Maude" rotary engine.

and the two sets of cams are placed 90° apart, so that when one piston is making its power stroke the corresponding piston in the opposing cylinder is compressing. The firing order for this arrangement and number of cylinders, numbering the one set 1, 3, 5, and the other 2, 4, 6, is as follows: 1-2-3-4-5-6. If it were desired to have firing-exhaust and induction-compression together in opposing cylinders instead of firing-compression and induction-exhaust, the two sets of cams would, of course, also be placed 90° apart, but in the opposite direction. In the experimental engine the firing does not occur at regular intervals but at 90° - 30° , 90° - 30° , &c. In the 12-cylinder engine, however, all the impulses

to be held stationary while the central shaft was allowed to revolve, but the alterations should not offer any great difficulties. The objection might be raised that as there is a considerable distance between the bearings, and the central hollow shaft is unsupported in the middle where the drive is taken, there must be a considerable amount of "whip," but in this connection it should be remembered that as the cylinders are held at both ends they in themselves form a rigid structure and thus help to take part of the load off the shaft, which must, however, take the torsional stresses or torque.

As we have already pointed out, the engine that has been built and is now being tested is only an experimental one, and no

attempt has been made to get the weight down to a minimum, but as it stands it has, we understand, developed 25 h.p. on the fan brake, with a bore and stroke of $4\frac{1}{2}$ ins. by 4 ins., and has done a continual run of 40 mins. under very unfavourable cooling conditions. The designer is confident that he will be able to get the weight down to somewhere below the figure now usually attained in air-cooled engines, and have the advantage of as many impulses per revolution of the engine as there are cylinders. He is at present endeavouring to raise the necessary capital to further develop the



AIRCRAFT AND THE WAR.

THE DAILY TELEGRAPH correspondent at Athens, writing on August 11th, describing the fighting at Ari Burnu in the Dardanelles, said:—

"During the attack three Turkish aeroplanes hovered over the British lines, directing the fire of the enemy's batteries."

According to messages from Paris, there were several aerial duels between French and German aeroplanes on the 11th inst. A French machine, flying over Colmar, attacked an Aviatik and compelled it to descend. The same day French aerial patrols attacked and damaged two German aeroplanes.

In the German *communiqué* of the 11th inst. it was stated:—

"The fortresses of Novo Georgievsk and Brest-Litovsk were bombarded from our airships."

A Central News message from Amsterdam on August 12th said:—

"Bombs were dropped on Zeebrugge on Tuesday evening by one of the Allies' aeroplanes."

In the "wireless" news sent out from Berlin on August 12th there was the following:—

"French aviators dropped bombs on Zweibruecken (in Bavaria) and St. Ingbert, killing eight and wounding several civilians. The material damage is small."

In the German *communiqué* of the 12th inst. it was stated:—

"One of our airships bombarded the railway station at Bielostok. A great explosion was observed."

In a letter home a private in the Leicestershire Regiment writes as follows of the bringing down of a German aeroplane east of Zillebeke on July 25th:—

"I was seated in the doorway of my dug-out admiring the sunset and watching the aeroplanes. Suddenly I noticed one of ours and a German one apparently manoeuvring for positions. The excitement was intense—wondering who would get highest first. Then out of the clouds another of our airmen absolutely hurled himself at the Taube. Whew! I have never seen anything move so fast. He came like a flash—like a hawk after its quarry."

"We then knew that it was all over. Crack, crack, crack went our man's machine gun, and he also dropped a bomb. Immediately the Taube, set on fire, turned upside down, throwing out the observer, whom we could plainly see tumbling down, turning over and over, while the plane came gliding down and crashed into the earth, a mass of flaming wreckage."

"That makes the third plane I have seen brought down, but this was the most awe-inspiring, for it seemed a real fight, and it happened so close too. And that plane of ours; it must have been going over a hundred miles per hour, and the other one had just been baiting the German, I think, keeping him busy till our other arrived."

In an article in the TIMES of the 12th by Mr. Ralph Pulitzer, editor-in-chief of the NEW YORK WORLD, on his visit to the French firing line, there was the following:—

"On our way back through the communicating trenches, we saw an attempt by the German guns to bring down a French airman who was flying above us."

"Every time they went off their report was so violent that I could not help jumping. The airman was sailing round overhead, and the German gunners were letting drive at him with what looked to us to be pretty bad shots. I could see the aeroplane wheeling in the air, hear the distant reports of 'départs,' wait an appreciable time, and then see the bursts of white flame high up in the sky, followed by little puffs of smoke."

"That's a wretched shot," said I as one shell burst over our heads far behind the aeroplane. "Yes, a bad shot for the aeroplane, but a good shot for us," replied one of my companions. I was stand-

ing with my head back looking straight overhead. "Come move on, move on, or you'll catch some of that on your face!" warned the officer who was my special mentor. I obediently moved on, and, sure enough, a couple of seconds later he picked up a piping fresh shrapnel ball which had just fallen into our trench out of the sky.

"In the meantime the airman had corrected his guns, so that they were hitting whatever they were shooting at, and he sailed away to the rear, while his battery became really enthusiastic, and went off with a series of tearing crashes, which kept me jumping all the way to the end of the communication trench. There I climbed out, with my ears full of the 75's violent reports, the distant explosion of their shells, the distant reports of the enemy's guns, the flack, flack, flack of the rifle bullets, and the occasional sharp whistling of one overhead."

The DAILY MAIL correspondent at Rotterdam, writing on the 13th inst., said:—

"A Zeppelin stationed at Evere, near Brussels made a trip along the Belgian coast last evening and returned safely. The Allies' aeroplanes continue very active. During a recent raid on Ghent two airships at St. Denis and Westrem were destroyed by well-aimed bombs and also a German aeroplane. Four soldiers were seriously wounded."

A Central News message from Northern France on the 13th stated:—

"The aviators of the Allies have been busy lately, reconnoitring the German lines on the Yser front, and have dropped bombs with excellent effect among the enemy's reserves."

Writing of the reported action of the Russian Baltic Fleet near Oesel, the TIMES correspondent at Petrograd, said:—

"The Russian seaplanes again rendered invaluable services in supporting our fleet."

A Reuter message from Dunkirk on August 13th, reported:—

"A German Aviatik, which attempted to throw bombs yesterday evening, was put to flight by gunfire."

Reuter's correspondent at Petrograd on Saturday reported:—

"The first enemy aeroplane has appeared over Brest-Litovsk, and was driven off by the Russian guns."

"A despatch from Bielostok states that German aviators are paying a good deal of attention to Malkin, which is on the main line from Warsaw to Petrograd. Not a day passes without a visit from Taubes or Zeppelins, which kill and maim numbers of civilians."

A correspondent of the VOSSISCHE ZEITUNG, writing of the way in which the Russians are burning everything in their retreat, said:—

"When I drove beyond Vladimir Volynski Verba was already burning, and in the immediate neighbourhood I could see no fewer than seven further conflagrations. Our airmen informed me that a great and devouring fire was spreading ever farther in the direction of Kovel."

The Turkish *communiqué* of Saturday stated:—

"Hostile aircraft have recently been flying constantly over the Isonzo region, but they have always been driven off by the effective fire of our anti-aircraft batteries."

The DAILY MAIL correspondent at Athens, writing on Saturday night, said:—

"To-day's advices from Constantinople state that further visits have been paid to the city by Allied aeroplanes. Bombs have been dropped on the arsenal at Tophane, and also at Galata, causing considerable damage and some casualties."

The Turkish *communiqué* of Sunday stated:—

"Enemy airmen dropped bombs on Ari Burnu during the evening of Thursday and the morning of Friday. Nine soldiers were wounded."

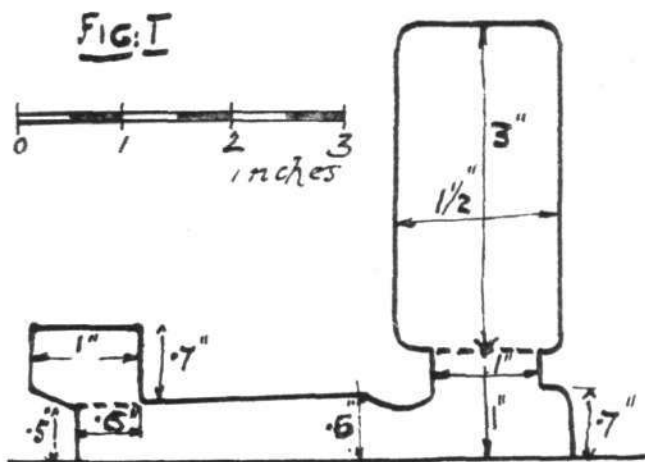
Models

ALL communications in connection with this section should be addressed to the Model Editor, *Flight*, 44, St. Martin's Lane, London, W.C. Correspondents are requested to write on one side of the paper only.

Paper Model Aeroplanes in the Making.

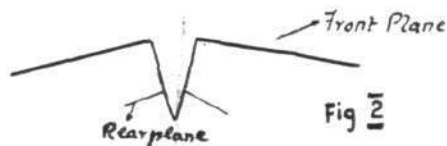
By ALAN H. CURTIS.

So much has been written on the theory of paper aeroplane flying and of the "whys" and the "wherefores" that I think a few notes on the actual construction and flying of these interesting models would not be out of place. It is all very well to lay down a theory,



but it is another thing to make the machine prove it in practice. The following is a short description showing exactly how to make a practical paper aeroplane that will not only give a faithful representation of a real machine but will also make good flights.

I find the easiest type to explain is the "Parasol" monoplane.



Firstly, as to the materials required: Some stiff paper (preferably Windsor and Newton's "Drawing Cartridge Paper," which can be had in 6d. blocks, 10 ins. by 7 ins., containing 20 sheets, which will serve to make as many models); a small piece of 1/8 in. square wood; some Gloy or paste.

Take a sheet of paper and fold it in half and trace out the outline of the monoplane as shown in Fig. 1.

Now cut this out, rounding all corners and bending where shown so that we have the machine as in the front elevation, Fig. 2.

Now it is necessary that the planes be kept together at the top. For this purpose cut out a rectangular piece of the same paper, 1 1/2 ins. by 6 ins., and after rounding corners, paste this across the top of the planes.

The next thing to fit on is the rudder. Cut out the outline therefore as seen in Fig. 3.

Now paste the shaded portion on both sides and place rudder in position, at the rear of the body, between the two layers of paper.

If the machine was flown in this condition (provided it was weighted), the planes would buckle up. To prevent this take another piece of paper and fold it as before, and cut out shape indicated in Fig. 4, folding where shown and sticking on to the body and wings as in Fig. 5.

This should be fixed on so as to give a very small dihedral angle, i.e., the planes must be practically flat.

Now we are ready for the chassis and weight. The writer has found that a visiting card is very serviceable for the former. Fold it in half and cut out any form somewhat similar to that shown in Fig. 6, and bend as in 6a (front elevation).

The two sides can now be separated by cutting along the fold from A to B.

Next cut off a piece of 1/8-in. square wood, 3 ins. long, and make a slit in the centre of one end 3/4 in. long, and, after placing chassis in position (one half on each side of body), fix weight over it, and this will keep it in place. The construction of the model is now finished.

It is advisable to give the planes a slight camber by the leading edge, but no angle of incidence, as, in the writer's opinion, it is of no use for a model in which no power is exerted.

Fig. 7 shows the finished model.

If the machine has been constructed as shown it should make very good glides, but on no account should it be thrown, but gently released from the hand with a slight forward motion. I find it best to launch the models from a window of my house which overlooks a field; then I can get quite long and steady glides. After a few experiments with this type, the beginner will soon be able to make tractor biplanes, Taube or other monoplanes, or Dunne biplanes, using the same method of construction, but in the case of the biplanes substituting struts instead of the under bracings or "load wires" as described. Working on these lines I have made many different types up to about 1 ft. in span, and on one of my tractor biplanes I fitted a small carved propeller with some success. It certainly added considerably to the model from an appearance point of view.

Should anyone fail to induce the monoplane to fly, the author of these notes would be pleased to forward one of his own make, post free.

Lastly, a few hints on flying these particular models.

1. Don't throw away a model because it won't fly the first time. Try different weights and positions of same, and tune it up.

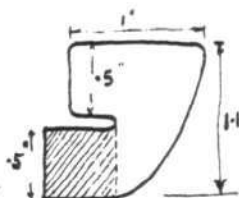


Fig. 3

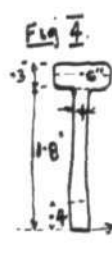


Fig. 4

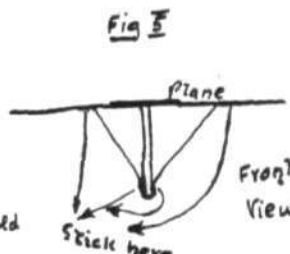


Fig. 5

2. Rather have too much head weight than too little. In the latter case the machine will be unstable; in the former it will fly fast if the elevators are adjusted.

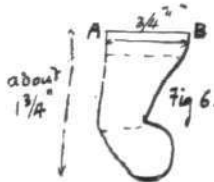


Fig. 6



Fig. 6a



Fig. 7

3. Camber only serves to stabilise the machine. Contrary to theory, it does not increase the lift on these machines (they have no power), but rather tends to decrease it.

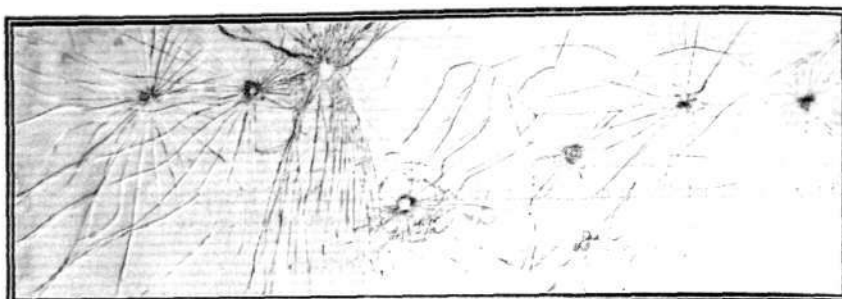
4. Don't expect your model to "loop the loop." It will not do so unless thrown against a high wind. That is not gliding.

5. Don't fit useless accessories; they simply hamper the machine's progress. A chassis is all right, but there is really no need for wheels.

An Enquiry.

A reader at Manor Park wishes to be put into communication with another worker who may have designs for a model aeroplane driven by a compressed-air engine having a cylinder of 24 ins. by 3 ins. diameter, to drive a 12-in. propeller. We shall be pleased to send on any communications to our correspondent.

What might have happened if the glass had not been "Triplex Safety."—The above photograph shows an Auster wind-screen on a Crossley car, attached to the Royal Flying Corps. A shrapnel shell exploded fairly close to the car, and it will be noticed that the glass in question was struck by eight shrapnel bullets and yet only one penetrated the glass, and that one only just got through. The glass is still perfectly rigid and strong, and, except for one small hole, sufficiently sound to continue its work for an indefinite period. A remarkable object-lesson generally, and particularly to all those concerned



with seeing after the safety of the men concerned in this war.



Thinning the Zeppelin Fleet.

MESSAGES from Vlieland state that one Zeppelin was seen coming from the west on the 13th inst. If this was one of the two which took part in the raid on the East Coast on the 12th inst., it would seem that the other was, as stated by the Admiralty, seriously damaged. On Monday, the 16th inst., it was reported from Amsterdam that a long goods train had passed through Liège, transporting the remains of an aeroplane [? airship, ED.], which took fire on returning from a raid on the English coast. This still further suggests corroboration of the damage to the airship on the 12th.

Similarly in connection with Monday (16th inst.) night's raid, it was reported from Ameland that three Zeppelins were sighted going west at night, whilst only two returned on the following morning. Let us hope this also means that our anti-aircraft arrangements once again made themselves felt upon this occasion.

The New French Battle Aeroplanes.

ACCORDING to a correspondent of the TEMPS the new French aeroplanes fitted with two motors and armed with machine guns have given excellent results at the front. They are speedier than the German Aviatiks, and it is now simply a question of increasing the effectives.

A Prize for Taube Hunters.

A NOTE in the PETIT PARISIEN states that an inhabitant of Merville, near Hazebrouck, has offered a prize of £40 to the first soldier who succeeds in bringing down a Taube in the area of that commune.

American Flyers for France.

A MESSAGE has been received by FRANCE DE DEMAIN from New York stating that an association has been formed in the United States with the object of offering to France 1,000 aeroplanes manned by American pilots, mostly students of Yale and Harvard Universities. A fund has been opened, and over £200,000 is said to have been received already. After the war it is intended that the pilots should return to America and form a flying reserve force.

Double French Fatality.

ACCORDING to messages from Dijon on August 13th a biplane, which was landing in a *vol plané* near the cemetery of Montbard, came into collision with a tree, and crashed to earth from a height of 32 ft. The pilot and a lieutenant were killed.

German Machine Found in Channel.

INFORMATION was received in Paris on Saturday from Boulogne that a traveller who has arrived there from England states that an Aviatik has been picked up in the Channel some way out from Folkestone. The frame of the German machine was practically intact, but there was no trace whatever of the motor.

Wireless Operators Wanted for R.F.C.

THERE is a call for men between nineteen and twenty-five years of age, of good education and preferably with some technical training, to be trained as wireless operators with the R.F.C. During the period of training recruits will receive 2s. a day and the usual allowances. They will be trained at the Regent Street Polytechnic and other technical schools.

Illegal War Service Badges.

UNDER the new rules made by the Minister of Munitions it is stipulated that no person shall, except with the express authority of the Minister, make, sell, issue, or wear any badge similar in form or appearance to any badge supplied or authorised by the Minister, or any colourable imitation thereof, or any badge or other distinctive mark calculated or intended to suggest that the wearer thereof is engaged on munitions work or other work for war purposes.

The penalty for offences is a fine not exceeding £50.

Dope Poisoning Scheduled.

By an order of the Home Secretary, the provisions of the

Workmen's Compensation Act, 1906, have been extended so as to include in the schedule of diseases, injuries, and processes:

"Dope poisoning; that is, poisoning by tetrachlorethane or any other substance used as or in conjunction with a solvent for acetate of cellulose, or its sequelae."

"Any process in the manufacture of aircraft."

Lieutenant C. M. Gamage Wounded.

IT is with regret that we learn that Lieutenant C. M. Gamage, the youngest son of Mr. A. W. Gamage, has been seriously wounded at the front. It will be recalled that Mr. Gamage's eldest son was wounded at the Dardanelles some months ago.

A Superb Catalogue.

A STRIKING instance of the firm hold which aviation has obtained upon the engineering industry and the promising view as to its future which is taken by prominent firms is the superb catalogue which is just to hand from the Sunbeam Motor Car Co. setting out the details of Sunbeam-Coatalen Aircraft Motors. Full specifications are given of the 150 h.p. 8-cylinder and the 225 h.p. 12-cylinder types, together with diagrams of the valve setting and the lubrication system, &c. There is also a very full list of all spare parts, and the identification of these is facilitated by numbered diagrams. It is a delightful example of the printer's art, the text and illustrations being arranged with exceptional judgment.

Correspondence Classes in Aeronautical Engineering.

IN order to meet the needs of those who are taking up aviation and wish to get a knowledge of the scientific side of it, but have not the opportunity to attend a technical college, the British Correspondence School of Engineering have arranged a series of courses in aeronautical engineering. There is a general course which has been designed to give the student a comprehensive grasp of the principles of flight, and after completing that he can proceed to other courses on aeroplane design, construction, engines, &c. Prospectuses giving a synopsis of the course and details as to fees, &c., can be obtained either from the head office at 254, Oxford Road, Manchester, or 36, Maiden Lane, London, E.C.



Aeronautical Patents Published.

Applied for in 1914.

Published August 19th, 1915.

- | | | |
|---------|---------------------------------|-------------------------------------|
| 3,138. | F. SCHRAIVOGEL. | Aeroplanes. |
| 4,306. | A. PÉDERY, VARSANYI AND ZOLTAN. | Automatic stabilisers. |
| 17,394. | N. LACROTE. | Pneumatic safety wear for aviators. |
| 17,953. | E. DODSON. | Aerial propellers. |
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